

### **ABSTRACT OF THE DISCLOSURE**

In a magnetic resonance apparatus and method to acquire a diffusion-weighted image in diffusion-weighted MRT imaging, a non-diffusion-weighted data set and a diffusion-weighted data set are measured and stored by means of a DESS sequence (Double Echo Steady State Sequence), with two readout gradients being switched successively for the non-diffusion-weighted data set, and a bipolar diffusion gradient pulse sequence being switched between two readout gradients for the diffusion-weighted data set. A diffusion-weighted MRT image is calculated is calculated based on the non-diffusion-weighted data set and the diffusion-weighted data set, as well as on the basis of a value characterizing the diffusion-weighted measurement.

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